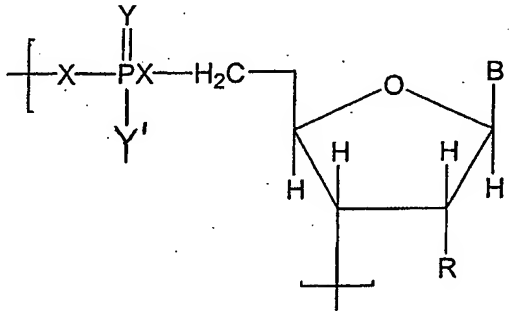
Claims

1. A probe having the general structural formula (I)

$$5'\text{-}M\text{-}(Z)_n\text{-}X_1\text{-}X_2\text{-} \ldots X_m\text{-}(Z)_{n'}\text{-}M'\text{-}3'$$

wherein X_1, X_2 ... and X_m are in each case an arbitrary nucleotide or nucleotide analog and in which the sequence $X_1\text{-}X_2\text{-} \ldots X_m$ is a probe sequence which is capable of binding to an analyte,
Z is, in each case independently, a pyrimidine nucleotide or pyrimidine nucleotide analog,
M and M' are fluorescent labeling groups,
n and n' are, in each case independently, integers of from 1 to 15, and
m is an integer corresponding to the length of the probe sequence.

2. The probe as claimed in claim 1,
characterized in that
X_1, X_2 ... and X_m are selected, in each case independently, from units having the general structural formula (II) or salts thereof:



wherein
B is a natural or unnatural nucleobase,
R is a radical which is selected from H, OH, halogen, -CN, -C_1-C_6-alkyl, -C_2-C_6-alkenyl, -C_2-C_6-alkynyl, -O-C_1-C_6-alkyl, -O-C_2-C_6-alkenyl, -O-C_2-C_6-

alkynyl, -SH, -S-C_1-C_6-alkyl, -NH_2, -NH(C_1-C_6-alkyl) and -N(C_1-C_6-alkyl)$_2$,
-X is, in each case independently, a radical which is selected from -O-, -S-, -NR'- and -CR'$_2$-,
-Y is, in each case independently, a radical which is selected from =O and =S, and
-Y' is, in each case independently, a radical which is selected from -OR', -SR', -(NR')$_2$ and -CH(R')$_2$,
where R' is, in each case independently, H or C_1-C_3-alkyl.

3. The probe as claimed in claim 1 or 2,
characterized in that
X_1, X_2 ... and X_m are 2'-deoxynucleotides.

4. The probe as claimed in one of claims 1 to 3,
characterized in that
Z is selected from thymidine nucleotides or nucleotide analogs and/or cytidine nucleotides or nucleotide analogs.

5. A probe as claimed in one of claims 1 to 4,
characterized in that
at least one Z is a thymidine nucleotide or nucleotide analog.

6. The probe as claimed in one of claims 1 to 5,
characterized in that
Z is in each case a thymidine 2'-deoxynucleotide.

7. The probe as claimed in one of claims 1 to 6,
characterized in that
M and M' are selected, in each case independently, from rhodamines, fluoresceins, oxazines, cyanines, Bodipy dyes and Alexa dyes.

8. The probe as claimed in one of claims 1 to 7,
characterized in that

M and M' are selected from green fluorescent labeling groups.

9. The probe as claimed in one of claims 1 to 8, **characterized in that** M and M' are identical.

10. The probe as claimed in one of claims 1 to 8, **characterized in that** M and M' are different.

11. The probe as claimed in one of claims 1 to 10, **characterized in that** n and n' are, in each case independently, integers of from 3 to 10.

12. The probe as claimed in one of claims 1 to 11, **characterized in that** m is an integer of 10-90, preferably of 12-50.

13. The use of one or more probes as claimed in one of claims 1 to 12 in a method for detecting an analyte in a sample.

14. The use as claimed in claim 13, **characterized in that** the concentration in the sample of the analyte to be detected is $\leq 10^{-9}$ M.

15. The use as claimed in claim 13 or 14, **characterized in that** the analyte is a nucleic acid.

16. The use as claimed in claim 15, **characterized in that** the nucleic acid to be detected is an RNA from a biological sample or an unamplified cDNA which is synthesized therefrom.

17. The use as claimed in claim 15 or 16,
characterized in that
the nucleic acid to be detected is an unamplified genomic DNA.

18. The use as claimed in one of claims 13 to 17 in fluorescence correlation spectroscopy (FCS).

19. The use as claimed in one of claims 13 to 18,
characterized in that
several probes in each case having a different sequence and different labeling groups are used for detecting a single analyte.

20. The use as claimed in claim 19,
characterized in that
the detection comprises a crosscorrelation determination.

21. A method for detecting an analyte in a sample, comprising bringing the sample into contact with one or more probes as claimed in one of claims 1 to 12 under conditions under which the one or more probes can bind to the analyte to be detected and then determining whether binding takes place or not.

22. The use as claimed in claim 21,
comprising the detection of a nucleic acid by means of hybridization.

23. The method as claimed in claim 22,
characterized in that
the nucleic acid to be detected is not amplified before being brought into contact.